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(b) Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in this application:

Listing of Claims

Claim 1 (currently amended): A microscope system for detecting and compensating for changes within ~~a recorded~~ an observable image ~~content~~ of a microscopic specimen comprising:

a microscope that defines an illuminating light beam and a detected light beam[[.]];

at least one objective[[.]];

~~an XYZ~~ a movable stage;

a scanning module ~~with a gimbal-mounted scanning mirror~~ which guides the illuminating light beam as it scans the specimen generating the detected light beam;

a detector module having at least one detector detecting at least a part of the detected light beam;

a computer system receiving detected data from the at least one detector, the computer system comprising a means for recording a multidimensional image having at least two dimensions, ~~which has~~ a means for calculating signatures of a recorded multidimensional image ~~having a number of dimensions between 2 and higher than 3~~, and a means for calculating statistical signature parameters of the recorded multidimensional image;

~~multiple~~ positioning ~~motors and actuators are provided on~~ means coupled to the microscope; and

at least one software module, which supplies to the positioning ~~motors or actuators~~ means control signals ~~ascertainable~~ determined from the statistical signature parameters of at least two sequentially recorded multidimensional images on the basis of an inference method to change at least some features of the observable image of the microscopic specimen towards their prior state[[.]]

~~wherein the software module records and observes changes in the signatures, derives signature parameters, and ascertains control signals from the signature parameters on the basis of an inference method~~.

Claim 2 (canceled)

Claim 3 (currently amended): The microscope system as defined in Claim 1, wherein changes in scan parameters can be determined from the ~~ascertained~~ statistical signature parameters; and the scan parameters include at least one of image format, a position of the ~~XYZ~~ movable stage, an electronic zoom, an objective selection, galvanometer positions, and spectral scan bands.

Claim 4 (currently amended): The microscope system as defined in Claim 1, wherein the microscope is a scanning microscope ~~(100)~~.

Claim 5 (original): The microscope system as defined in Claim 4, wherein the scanning microscope is a confocal scanning microscope.

Claim 6 (currently amended): The microscope system as defined in Claim 1, wherein the statistical signature parameters ~~encompass~~ comprise at least one statistical parameter of [[the]] a signature interpreted as a distribution function, wherein the ~~distribution function~~ statistical parameter is mean or variance or moments or quartiles or skewness or median or maximum and minimum.

Claim 7 (currently amended): A method for detecting and compensating for changes within ~~a recorded~~ an observable image ~~content~~ of a microscope specimen using a microscope, comprising the steps of:

scanning [[a]] the specimen with ~~a gimbal-mounted scanning mirror which guides~~ an illuminating light beam ~~over or through the specimen~~ and recording multiple image points for generation of a multidimensional image having ~~a number of~~ at least two dimensions ~~between 2 and higher than 3~~;

calculating signatures of the recorded multidimensional image;

calculating statistical signature parameters from the recorded signatures;

observing and ascertaining the changes in the statistical signature parameters; and

interpreting the changes in the signatures of at least two sequentially recorded multidimensional images and converting them into signals for positioning ~~motors or actuators that are~~ means provided in the microscope system on the basis of an inference method to change at least some features of the observable image of the microscopic specimen towards their prior state ~~wherein the interpretation of the changes in the signatures, and the conversion into signals for positioning motors or actuators, are accomplished by means of a software module that records and observes changes in the signatures, derives signature parameters, and ascertains control signals from the signature parameters on the basis of an inference method~~.

Claim 8 (canceled)

Claim 9 (currently amended): The method as defined in Claim 7, wherein changes in scan parameters can be determined from the ~~ascertained~~ statistical signature parameters; and the scan parameters include at least one of image format, a position of the ~~XYZ~~ movable stage, an electronic zoom, an objective selection, galvanometer positions, and spectral scan bands.

Claim 10 (currently amended): The method as defined in Claim 7, wherein the statistical signature parameters ~~encompass~~ comprise at least one statistical parameter of [[the]] a signature interpreted as a distribution function, ~~examples being~~ wherein the statistical parameter is one of: mean, variance, moments, quartiles, skewness, median, maximum, and minimum.